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(FILE 'HOME' ENTERED AT 05:51:15 ON 17 DEC 2002)

FILE 'CA' ENTERED AT 05:51:24 ON 17 DEC 2002

L1 6483 S (HYDROXIDE OR OH OR HO OR NAOH OR KOH) (5A) SPECTRUM
L2 55393 S (HYDROXIDE OR OH OR HO OR NAOH OR KOH) (7A) (DETECT? OR DETERMIN? OR
ASSAY? OR ANALY? OR ASSESS? OR TEST? OR MEASURE? OR MONITOR? OR
ESTIMAT? OR EXAMIN? OR SENSE# OR SENSING OR SENSOR OR IDENTIF? OR
PROBE# OR PROBING OR QUANTITAT? OR QUANTIF?)
L3 1270 S L1 AND L2
L4 3856 S L1-2 AND (UV OR ULTRAVIOLET OR ULTRA VIOLET)
L5 243 S L3 AND L4
L6 37 S L3 AND (KRAFT OR PULP? OR PAPER OR PAPERMAKING OR CELLULOSE)
L7 69 S L5 AND (NAOH OR KOH OR SODIUM OR POTASSIUM OR CAUSTIC)
L8 1391 S (CARBONATE OR CO32 OR BICARBONATE OR NA2CO3 OR K2CO3 OR HCO3 OR
NAHCO3 OR KHCO3) (5A) SPECTRUM
L9 25331 S (CARBONATE OR CO32 OR BICARBONATE OR NA2CO3 OR K2CO3 OR HCO3 OR
NAHCO3 OR KHCO3) (7A) (DETECT? OR DETERMIN? OR ASSAY? OR ANALY? OR
ASSESS? OR TEST? OR MEASURE? OR MONITOR? OR ESTIMAT? OR EXAMIN? OR
SENSE# OR SENSING OR SENSOR OR IDENTIF? OR PROBE# OR PROBING OR
QUANTITAT? OR QUANTIF?)
L10 236 S L8 AND L9
L11 722 S L8-9 AND (UV OR ULTRAVIOLET OR ULTRA VIOLET)
L12 23 S L10 AND L11
L13 4 S L10 AND (KRAFT OR PULP? OR PAPER OR PAPERMAKING OR CELLULOSE)
L14 127 S L6-7, L12-13
L15 121 S L14 NOT PY>2000

=> d bib, ab 1-121 115

L15 ANSWER 12 OF 121 CA COPYRIGHT 2002 ACS
AN 129:190620 CA
TI In situ analysis of ash deposits from black liquor combustion
AU Bernath, Peter; Sinquefield, Scott A.; Baxter, Larry L.; Sclipa, Gian;
Rohlfing, Celeste M.; Barfield, Michael
CS Combustion Research Facility, Sandia National Laboratories, Livermore, CA,
94551-0969, USA
SO Vibrational Spectroscopy (1998), 16(2), 95-103
AB Aerosols formed during combustion of black liquor cause a significant fire-
side fouling problem in **pulp** mill recovery boilers (black liquor is a
recycled byproduct formed during the **pulping** of wood in the **paper**-making
industry). The ash deposits reduce heat transfer effectiveness, plug gas
passages, and contribute to corrosion. Both vapors and condensation
aerosols lead to the formation of such deposits. The high ash content of
the fuel and the low dew point of the condensate salts lead to a high
aerosol and vapor concn. in most boilers. In situ measurements of the
chem. compn. of these deposits is an important step in gaining a
fundamental understanding of the deposition process. IR emission
spectroscopy is used to characterize the compn. of thin film deposits
resulting from the combustion of black liquor and the deposition of
submicron aerosols and vapors. New ref. **spectra** of Na2SO4, K2SO4, **Na2CO3**,
and **K2CO3** pure component films were recorded and compared with the spectra
of the black liquor deposit. All of the black liquor emission bands were
identified using our new ref. spectra as well as literature data and ab
initio calcns. The ab initio calcns. predict the locations and intensities
of IR bands for the alkali-contg. vapors of interest.

L15 ANSWER 31 OF 121 CA COPYRIGHT 2002 ACS

AN 108:115963 CA
 TI **Identification** of magnesium and iron **carbonates** based on light-absorption **spectra**
 AU Turanova, Lidia; Turan, Jan
 CS Geol. Ustav, Univ. Komenskeho, Bratislava, 851 01, Czech.
 SO Mineralia Slovaca (1987), 19(4), 375-7
 LA Czech
 AB Characteristic curves of optical absorption spectra of minerals are presented, esp. for the magnesite-siderite isomorphous series, over the range 200-1200 nm.

L15 ANSWER 39 OF 121 CA COPYRIGHT 2002 ACS
 AN 101:93048 CA
 TI High molecular weight properties of lignin in black spent liquors from reed **pulp**
 AU Kim, Su Bok; Kim, Son Gil; Cho, Guk Tae
 CS N. Korea
 SO Choson Minjujuui Inmin Konghwaguk Kwahagwon Tongbo (1984), (3), 39-43
 LA Korean
 AB Lignins in spent liquors from reed **pulp** for rayon (sulfate cooking) and **paper** (soda cooking) were extd. with water, solvents, and 0.1 N **NaOH**, **analyzed** by **UV spectra**, and fractionated by gel permeation chromatog. The lignin from **paper pulp** had lower degree of degrdn. than that from rayon **pulp**. This may be attributed to the high viscosity of black liquor from **paper pulp** at low concn.

L15 ANSWER 57 OF 121 CA COPYRIGHT 2002 ACS
 AN 71:17310 CA
 TI Optical absorption of hydroxyl ions associated with divalent calcium in **sodium** chloride
 AU Kessler, Arnost
 CS Inst. Phys., Bratislava, Czech.
 SO Czech. J. Phys. (1969), 19(5), 689-96
 AB The **measurements** confirmed the assocn. of Ca^{2+} and OH^- in $\text{NaCl}:\text{CaCl}_2 + \text{NaOH}$, which causes an increase and a shift ($+0.031 \mu$) of the OH^- absorption at 2.8μ , the extinction of the OH^- **uv**-absorption at 184 nm., and the occurrence of new bands at 160-210 nm.

L15 ANSWER 67 OF 121 CA COPYRIGHT 2002 ACS
 AN 65:35419 CA
 OREF 65:6563g-h,6564a
 TI The pulse radiolysis of deaerated aqueous **carbonate** solutions. I. Transient optical **spectrum** and mechanism. II. pK for OH radicals
 AU Weeks, James L.; Rabani, Joseph
 CS Chem. Div., Argonne Natl. Lab., Argonne, IL
 SO J. Phys. Chem. (1966), 70(7), 2100-6
 AB The pulse radiolysis of deaerated aq. carbonate solns. at neutral and alk. pH was studied. A mechanism is presented, and several rate consts. have been detd. (all are in units of $\text{M}^{-1} \text{sec}^{-1}$): $k(\text{OH} + \text{CO}_3^{2-}) = 4.2 \times 10^8$, $k(\text{O}^- + \text{CO}_3^{2-}) < 10^7$, $2k(\text{CO}_3^- + \text{CO}_3^-) = 1.25 \times 10^7$ (zero ionic strength), and $k(\text{OH} + \text{HCO}_3^-) = 1.5 \times 10^7$. In the pulse radiolysis of carbonate solns. a transient optical absorption appears which is **identified** as the **carbonate** radical ion (CO_3^-). Its spectrum is reported and has a max. absorptivity of $1860 \pm 160 \text{ M}^{-1} \text{cm}^{-1}$ at 6000 A. There is a pH dependency of the rate of CO_3 formation, from which the pK for the ionic dissocn. of OH radicals has been detd. as 11.8 ± 0.2 , where pK is defined as $-\log \{ [\text{H}^+] [\text{O}^-] / [\text{OH}] \}$. The results are compared with earlier work. 20 references.

L15 ANSWER 83 OF 121 CA COPYRIGHT 2002 ACS

AN 59:71915 CA

OREF 59:13334b-f

TI Spectrophotometric method and its utilization in the analysis of alloys without using special reagents

AU Kharlamov, I. P.; Yakovlev, P. Ya.; Lykova, M. I.

SO Sb. Tr. Tsentr. Nauchn.-Issled. Inst. Chernoi Met. (1963), (31), 151-7

LA Unavailable

AB The absorption of >70 solns. of inorg. acids, bases, and salts was studied at 210-1100 m μ in 10-mm. cells. Colorless solns. of acids and alkalis absorb light mostly at 210-320 m μ ; solns. of acids and bases, even at marked concns., do not absorb light at wavelengths >300 m μ . Na₂S₂O₇ and NaF absorb light only slightly in the whole wavelength interval. Solns. of nitrates, chlorates, sulfates, bromides, iodides, and also Na and K phosphates absorb light strongly in the farther **ultraviolet** region with no max. except for the nitrates. Light absorption of phosphates and of K₂CO₃ and Na₂CO₃ in the **ultraviolet** region is due to the partial hydrolysis of these salts with the formation of alkalis. Colorless and slightly colored solns. of sulfates absorb light strongly in the far **ultraviolet** region, with the absorption intensity of various metals decreasing in the order Fe⁺⁺⁺ > Cu⁺⁺ > Cr⁺⁺⁺ > ZrO₂⁺⁺ > TiO⁺ > Co > Ni⁺⁺ > Mn⁺⁺ > Na⁺. Colorless and weakly colored solns. of the chlorides, except Cu and Cr chlorides, absorb light much more weakly in the whole interval of wavelengths; NH₄⁺, Sr, Nd, Ca, Ba, and Zn salts, even at 1 mg./ml., do not absorb light; the remaining metals give the following order with respect to absorption intensity: Hg⁺⁺ > Fe⁺⁺⁺ > Sb⁺⁺ > Fe⁺⁺ > Sn⁺⁺ > Cu⁺⁺ > Cr⁺⁺⁺ > Be⁺⁺ > Al⁺⁺⁺ > Ce⁺⁺⁺ > Pr⁺⁺⁺ > Ni⁺⁺ > Mn⁺⁺ > La⁺⁺⁺ > Co⁺⁺ > Li⁺ > Na⁺ > K⁺. KReO₄ and K₂MoO₄ show a characteristic max. at 230 m μ with a molar absorptivity of 4600-4700 (calcd. on the metal); NaVO₃ gives a max. at 265 m μ and a molar absorptivity of 4130; K hexaniobate gives a max. at 235 m μ with a molar absorptivity of 2400. The above data were used for the detn. of Nb, Mo, Re, and V in various alloys. For the detn. of Nb, fuse the residue of niobie acid obtained by acid hydrolysis with K₂CO₃ + Na₂CO₃, leach with cold H₂O, dil. the colorless soln. in a volumetric flask, and measure the absorbance at 234 m μ ; $\geq 0.2\%$ more Nb can be detd. in the presence of 20 mg. Al, 2 mg. W, and 4 mg. SiO₂ in 100 ml. soln.; V, Re, Mo, AsO₄⁻⁻⁻, and NO₃⁻ interfere; the sensitivity is 6×10^{-5} mg. Nb/ml. and the relative error is <4%. For the detn. of Mo, remove the base metal of the alloy with alkali, neutralize with H₂SO₄ to pH 6.5-9.5, and measure at 230 m μ $\geq 0.25\%$ Mo can be detd. in the presence of 20 mg. Al, 2 mg. W, and 4 mg. Si in 100 ml. soln.; V, Re, AsO₄⁻⁻⁻, and NO₃⁻ interfere; the sensitivity is 4×10^{-7} g. Mo/ml., and the relative error is <2%. For the detn. of Re, proceed as for Mo, but in this case, the temp. of evapn. to SO₃ fumes should be $\leq 160^\circ$ and the removal of NO₃⁻ is attained by repeated evapn. to weak fumes of SO₃. For the detn. of V, dissolve the alloy in acids, oxidize Cr to Cr⁶⁺, ppt. with cupferron, ignite, fuse with **K₂CO₃ + Na₂CO₃**, filter, and **measure** at 270 m μ W and Mo still present with V do not interfere; the amt. of Nb should be ≤ 2 mg. Other applications using the above data are also possible, esp. for Cu and Fe.

L15 ANSWER 110 OF 121 CA COPYRIGHT 2002 ACS

AN 53:27107 CA

OREF 53:4902b-d

TI Absorption **spectra** of gaseous alkali metal **hydroxides** at high temperatures

AU Spinar, L. H.; Margrave, J. L.

CS Univ. of Wisconsin, Madison

SO Spectrochim. Acta (1958), 12, 244-6

AB A modified Perkin-Elmer Model 81 single-beam recording infrared

spectrometer has been used for studies of gaseous hydroxides at temps. up to 1000°. Characteristic absorptions have been found for the equil. gases over NaOH, KOH, and RbOH at wave lengths in agreement with predictions made on the basis of a gaseous ionic model for [MOH]_x(g). Gases over LiOH, NaOH, and KOH were examd. in the visible and ultraviolet regions, but no absorption spectra were found. Na(g), in equil. with [NaOH]_x(g), was first detectable at about 850°.

L15 ANSWER 121 OF 121 CA COPYRIGHT 2002 ACS

AN 24:16417 CA

OREF 24:1796e-f

TI **Ultra-violet** absorption spectrum of hydroxyl ion

AU Ley, H.; Arends, B.

SO Z. physik. Chem., Abt. B (1930), 6, 240-6

AB The absorption spectra of solns. of NaOH in water varying from 0.063 to 0.066 N, of Ba(OH)₂ solns. from 0.0034 to 0.0528 N and of Ca(OH)₂ at 0.0398 N have been detd. In all cases a max. was observed at 1860 A. U.; this must be characteristic of OH ion. A brief theoretical discussion is given.

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